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THE PHONEMES OF BURERA

DAVID and KATHLEEN GLASGOW

1. INTRODUCTION

The purpose of this paper is to present the phonemes of the Burera language[1], and to propose a practical orthography for vernacular literacy which will allow the smoothest transition into English.

Burera is spoken by approximately 350 people of the Blyth River area in Arnhem Land. There are two main dialects distinguished by the way they say *that one*, **kun-narda** or **kun-nartpa** respectively. The material for this paper was gathered from April 1962 to September 1964. at the Maningrida Settlement on the mouth of the Liverpool River, where most of the Burera speakers have settled.

The authors are grateful to Miss Eunice Pike of the Summer Institute of Linguistics, who was a most valuable consultant in the final analysis and write-up of this paper. They also wish to acknowledge the helpfulness of material shared by Lester Hiatt, Lecturer in Anthropology at University of Sydney.

2. THE PHONEMES

The eighteen segmental phonemes are represented in the following charts.

CONSONANTS:

	Bilabial	*Alveo-Dental*	*Alveolar*	*Velar*
Stops	p	ṯ	t	k
Nasals	m	ñ	n	ŋ
Flap			ř	
Lateral			l	
Non-syllabic Vocoids	w	y	r	

Glasgow, D. and Glasgow, K. "The Phonemes of Burera". In Glasgow, D., Glasgow, K., Kirton, J., Oates, W., Sommer, S.A. and Sommer, E.G. editors, *Papers in Australian Linguistics No. 1.* **A-10:1-14**. Pacific Linguistics, The Australian National University, 1967. DOI:*10.15144/PL-A10.1*

VOWELS:

	Front	*Central*	*Back Rounded*
High	i		u
Low	æ	a	ɔ

There is a suprasegmental phoneme of stress.

3. CONSONANTAL CONTRASTS

The stops /p, ʈ, t, k/ contrast as follows:

'pælapila	*table*	munku'pækka	*long stick*
ʈæl	*ground*	ŋu'ʈækka	*I will return*
'tælippæ	*child*	ŋu'tærtæ	*I am strong*
'kælæmæ	*ear*	kuna'kæppa	*dawn*

'tařaŋap *last one*
an'ʈampaʈ *good hunter*
an'marpat *skeleton*
'ŋanp̃ak *armlet*

/p/ contrasts with /w/ as in 'paŋarři *name of subsection* and 'waŋařa *spirit*, a'punɔ *hit him* and a'wunɔ *gave to him*, a'pænæ *he arrived* and a'wænæ *he spoke*.

/ʈ/ contrasts with /y/ as in 'ʈiřiʈʈi *water lily* and 'yiřiʈʈiŋa *name of moiety*, ku'ʈæriʈæřiʈiŋa *pours it* and ku'yæřiyæřiʈiŋa *it flows*, 'kulaʈ *grass lily* and a'lay *hey! (masc.)*.

/t/ contrasts with /ř/ as in 'putippæ *they two* and 'puřippæ *they plural*, ʈinku'purta *catfish* and pur'řak *continuing*, 'tælippæ *child* and 'řæppura *foot*.

/ř/ and /l/ contrast as in 'pařa *buttocks* and 'pala *roof*, 'kurřo *here* and an'kɔrlɔ *dry, bald*. They contrast with /r/ as in 'pɔřiʈa *upland grass* and 'pɔriʈʈal *rice grass*, 'ʈarpař *cypress pine* and 'watpar *type of oak*, 'ñɔlkkiya *you tease* and 'ñɔrkkiya *you do habitually*, 'lama *shovel spear head* and 'raman̓ *fluff;* 'ʈařakkařa *lift it up!*, 'ʈalakkař *road*, and 'ʈaraŋa *sand*.

The nasals /m, ñ, n, ŋ/ contrast as follows:

ˈmɔlɔ	*again*	ˈlama	*shovel spear head*
ˈñɔlkkiya	*you tease*	ˈaña	*son, father*
ˈnɔkkɔřɔ	*small shark*	ˈlanappiŋa	*cypress pine*
ˈŋɔrlɔ	*didjeridoo*	ˈŋalaŋa	*sister's son*

ˈmamam *mother's mother*
ˈpulañ *name of subsection*
ˈraman *fluff*
ˈkalamaŋ *axe*

The non-syllabic vocoids /y, w, r/ contrast as follows:

ˈyamu	*can?*	aˈyařiñʈi	*will throw him*
ˈwamut	*name of subsection*	aˈwařiʈʈi	*he will go up*
ˈraman	*fluff*	aˈrakkiya	*he sits down*

aˈlay *hey! (masc.)*
ˈwatpar *type oak*
ŋaw *yes*

4. CONSONANTAL VARIANTS

The stops /p, ʈ, k/ have voiced variants which alternate with voicelessness word initially as in /pɔl/ [pɔl/ bɔl] *fire*, /ˈʈuřa/ [ˈʈuřʌ/ˈɖuřʌ] *paper*, /ˈkuñʈɔŋ/ [ˈkuñɖɔŋ/ ˈguñɖɔŋ] *tree*. These voiced variants occur word medially except in stop clusters[2]. For example /apuřiˈʈækkařæ/ [abuřiˈɖækʌřɛ] *they returned*, /anˈkuna/ [anˈgunʌ] *this one*.

The voiced variant of /t/ alternates with voicelessness word initially, and medially preceding /p/ as in /ˈtitpuřk/ [ˈt̤ɪtpuřk/ˈd̤ɪdpuřk] *axe*; and occurs medially preceding the stressed vowel and following nasals as in /ŋuˈtælippæ/ [ŋuˈdælipɛ] *I am small*, /ˈpantæ/ [ˈpandɛ] *leg*.

The alveolar consonants /t, n, ř, l/ have retroflexed variants. [t̤, n̤, l̤] occur word initially and in consonant clusters following /r/ as in /ˈtiyama/ [ˈt̤iyamʌ] *type shellfish*, /ʈinkuˈpurta/ [ʈɪnkuˈbur̤tʌ] *large catfish*, /ˈnɔrntɔ/ [ˈn̤ɔrn̤dɔ] *mud whelk shellfish*, /ˈlama/ [ˈl̤amʌ] *shovel spear head*, /ˈwɔrlɔ/ [ˈwɔrl̤ɔ] *sibling*. [ř] occurs word medially following /r/ as in /ˈŋarřappa/ [ˈŋarř̤apʌ] *alone*.

/ř/ has a trilled variant which tends to occur word finally and in consonant clusters except following /r/ as in /yɔř/ [yɔř] *rain*, /'yærmpæ/ ['yɛr̃mbɛ] *husband, wife's brother*, /'ʈanařa/ ['ʈanařʌ] or shortened form ['ʈanr̃ʌ] *rock*.

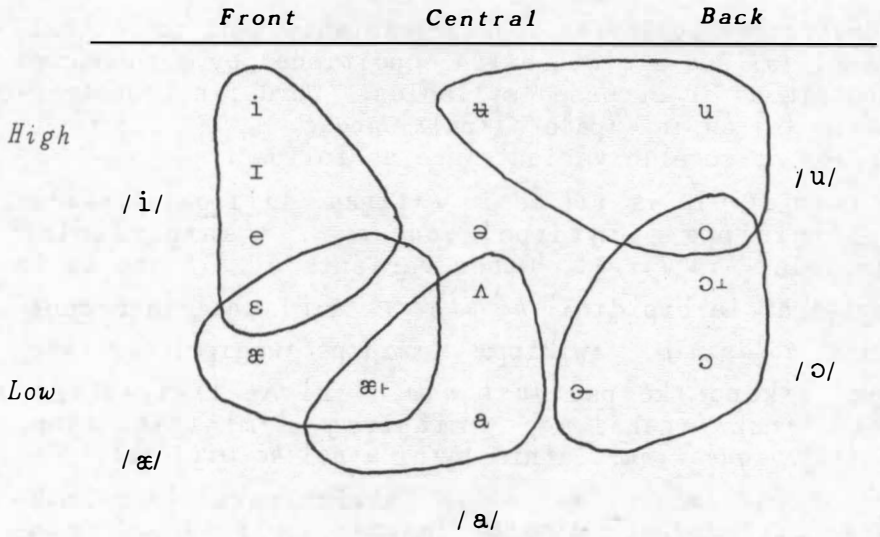
5. VOCALIC CONTRASTS

There are five vowels /i, æ, a, ɔ, u/ which contrast on stressed syllable as follows:

'ʈiřiʈʈi	*lily*	'kippæ	*just now*
'ʈæřiʈæřiʈi	*pour*	kuni'kæppæ	*dawn*
'ʈařiʈʈa	*carve*	'kappal	*grassland*
'ʈɔřiñʈuřɔ	*high ground*	ku'kɔppuřɔ	*personal possession*
'ʈuřa	*paper*	ku'kuppuřɔ	*builds it*
kana'pinpin	*bat*	ŋu'wiřippi	*I will spill*
a'pænæ	*he arrived*	a'wæřæmiya	*he is hungry*
'pantæ	*leg*	a'wařiʈʈiŋa	*he goes up*
a'pɔnɔ	*he went*	a'wɔřiʈa	*he watches corroboree*
a'punɔ	*he hit him*	'wuřu	*man*
'pilimuřa	*leech*	a'řimu	*will hold him*
'pælapila	*table*	a'ræmu	*will hammer him*
'pala	*house*	a'řanæ	*speared him*
pɔl	*fire*	a'řɔŋa	*he thirsted, burned*
'pulañ	*name of subsection*	a'řumu	*will break him*

6 VOCALIC VARIANTS

The area of vocalic variation for each vowel, vocalic glides excluded, and the overlap between vowel areas are shown on the following chart.



The following chart shows the variants of each vowel when in stressed syllable in respect to its immediate environments. A blank space has been left where no example has been recorded.

Preceding Consonant	*Following Consonant*	i	æ	a	ɔ	u
p	p	i	æ˕	a	ɔ/ɔ˗	u
alveodental/y	velar	ɪ	æ	a	ɔ	u
alveodental/y	w	ɪ	ɛ	æ˕	ɔ˕	u
alveodental/y	other	ɪ	ɛ	æ˕	ɔ/ɔ˗	u
ř	alveodental/y		æ[1]	a[1]	ɔ/ɔ˗	u
ř	other	e/e[1]	æ	a	ɔ/ɔ˗	u
w	alveodental/y	ɪ	ɛ[1]	a[1]	ɔ/ɔ˗	u
w	velar	ɪ/e	æ	a	ɔ˕/o	o[u]/u
w	other	ɪ	æ	a	ɔ/ɔ˗	u
velar	p	e/e[1]	æ	a	ɔ/ɔ˕	o/u
velar	alveodental	ɪ	ɛ[1]	a[1]	ɔ/ɔ˕	u/ʉ
velar	y	i	ɛ[1]	a[1]	ɔ/ɔ˕	u/ʉ
velar	l	ɪ	æ˕	a	ɔ/ɔ˕	u
velar	velar	ɛ/e	æ	a	ɔ/ɔ[u]	o[u]/u
velar	other	ɪ	æ˕	a	ɔ/ɔ˕	u
other	alveodental/y	i	ɛ[1]	a[1]	ɔ/ɔ˗	u/ʉ
other	velar	ɪ	æ˕	a	ɔ/ɔ[u]	o[u]/u
other	other	ɪ	æ˕	a	ɔ/ɔ˗	u
word initial		i	ɛ[1]	a		
word final		ɪ/e		a	ɔ	u

In unstressed syllables vocalic variants tend to centralize toward [ə] and are otherwise conditioned by consonantal environments as in stressed syllables. Word final unstressed /a/ is [ʌ] as in /'pala/ ['palʌ] *house.*

Examples of vocalic variants are as follows:

The norm of /i/ is [ɪ] as in /'ʈiŋka/ ['ʈɪŋgʌ] *pandanus fruit,* /'ɲiñippæ/ ['ɲɪñɪpɛ] *you (s.),* /an'pirlirlæ/ [an'bɪrl̥ɪrl̥ɛ] *his liver.* Other variants of /i/ are as in /a'pippiʈiŋa/ [a'bipɪɖɪŋʌ] *he blows,* /a'řimuŋa/ [a'řemuŋʌ/ a'ře¹muŋʌ] *holds him,* /'wikippæ/ ['wɪgɪpɛ/'wegɪpɛ] *together,* /'kippæ/ ['kepɛ/'ke¹pɛ] *just now,* /'kiya/ ['kiyʌ] *egg,* /'ɲikka/ ['ɲɛkʌ/'ɲekʌ] *no,* /'miʈʈiyaŋ/ ['miʈɪyaŋ] *ship,* /'i ['iyʌ] *qu*

The norm of /æ/ is [æ˕] as in /akæřæk'pawu/ [agæ˕řæ˕k-'bawu] *he will dodge,* /a'mæŋæ/ [a'mæ˕ŋɛ] *got him,* /'pælapila/ ['pæ˕labɪlʌ] *table.* Other variants of /æ/ are as in /'ʈækka/ ['ʈækʌ] *go back!,* /'yækka/ ['yækʌ] *early dry season,* /a'ʈæwiʈi/ [a'ɖɛwɪɖɪ] *he will get up to go hunting,* /ʈæl/ [ʈɛl] *ground,* /ŋu'řæñʈi/ [ŋu'řæ¹ñɖɪ] *I will put weight on, stamp,* /'řæŋařæŋa/ ['řæŋařæŋʌ] *day, light,* /a'wæʈʈawæʈʈiŋa/ [a'wɛ¹ʈawɛ¹ʈɪŋʌ] *he searches,* /'wæŋka/ ['wæŋgʌ] *speak!,* /'wæppa/ ['wæpʌ] *wash!,* /kuna'kæppæ/ [kuna'gæpʌ] *it dawns,* /a'ŋæʈʈiŋa/ [a'ŋɛ¹ʈɪŋʌ] *it gives birth,* /'kæyla/ ['kɛ¹ylʌ] *name of subsection,* /'kælæmæ/ ['kæ˕læ˕mɛ] *ear,* /ŋu'ŋækka/ [ŋu'ŋækʌ] *I will rest,* /'mæʈʈak/ ['mɛ¹ʈak] *feather fan,* /ŋu'pæypu/ [ŋu'bɛ¹ybu] *I will pass,* /'æywɔ/ ['ɛ¹ywɔ] *question.*

The norm of /a/ is [a] as in /'kala/ ['kalʌ] *negative,* /'wakarpu/ ['wagarbu] *shoulder,* /'palmařk/ ['palmařk] *wind,* /'ama/ ['amʌ] *mother,* /ana'ka/ [ana'ga] *he will bring.* Other variants of /a/ are as in /'ʈawu/ ['ʈæ˕wu] *throat,* /'yawuřiñ/ ['yæ˕wuřiñ] *single man,* /'ʈalæ/ ['ʈæ˕lɛ] *sister,* /'yalppu/ ['yæ˕lpu] *cook it!,* /pi'řaʈʈi/ [pɪ'řa¹ʈɪ] *rice,* /pa'řayæ/ [pa'řa¹yɛ] *later,* /ku'waʈʈina/ [ku'wa¹ʈɪnʌ] *it broke,* /'waykkun/ ['wa¹ykun] *above,* /ku'kaʈʈi/ [ku'ga¹ʈɪ] *it will dry up,* /'kayut/ ['ka¹yut] *shovel spear,* /an'paʈʈiřæ/ [an'ba¹ʈɪřɛ] *fierce.*

The norm of /ɔ/ is [ɔ/ɔ̝] as in /yɔř/ [yɔř/yɔ̝ř] *rain,* /mu-'řɔŋa/ [mu'řɔŋʌ/mu'řɔ̝ŋʌ] *it burns,* /an'mɔlɔmɔlɔ/ [an'mɔlɔ-mɔlɔ/an'mɔ̝lɔ̝mɔ̝lɔ̝] *good.* Other variants of /ɔ/ are as in /'ʈɔŋkka/ ['ʈɔŋkʌ] *hat,* /'ʈɔwuŋa/ ['ʈɔ˕wuŋʌ] *name of moiety,*

/ŋu'wɔkkuřiʈi/ [ŋu'wɔ↓kuřɪɖɪ] *I will write*, / kɔpɔ/ [kɔbɔ/ 'kɔ↓bɔ] *goose*, /'kɔʈɔk/ ['kɔɖɔk/'kɔ↓ɖɔk] *name of subsection*, /ana'kɔypuřippæ/ [ana'gɔybuřɪpɛ/ana'gɔ↓ybuřɪpɛ] *you (pl.)* /an'kɔlmpukɔlmpu/ [an'gɔlmbugɔlmbu/an'gɔ↓lmbugɔ↓lmbu] *little one*, /'kɔkkɔkkɔ/ ['kɔkɔkɔ/'kɔᵘkɔᵘkɔ] *long time*, /'kɔma/ ['kɔmʌ/'kɔ↓mʌ] *body*, /'nɔkkɔřɔ/ ['nɔkɔřɔ/'nɔ↓kɔřɔ] *small shark* /mu'řɔ/ [mu'řɔ] *it will burn*.

The norm of /u/ is [u] as in /mu'řumuŋa/ [mu'řumuŋʌ] *broke it*, /'kulukkulu/ ['kulukulu] *dog*, /'lumpuk/ ['lumbuk] *type pigeon*, /ku'pu/ [ku'bu] *will hit it*. Other variants of /u/ are as in /'wukkalæ/ ['woᵘkalɛ/'wukalɛ] *type goanna*, /'ŋuppař/ ['ŋopař/'ŋupař] *cloud*, /'pama 'kuʈiřa/ ['pamʌ 'kuɖɪřʌ/'pamʌ 'kʉɖɪrʌ] *its head*, /'kuyu/ ['kuyu/'kʉyu] *nose*, /a'kukkukkuwa/ [a'koᵘkoᵘkuwʌ/a'kukukuwʌ] *will cool him*, /'pařa 'muʈiřa/ ['pařʌ 'muɖɪřʌ/'pařʌ 'mʉɖɪřʌ] *its rear, stern*, /ŋu'puyana/ [ŋu'buyanʌ/ŋu'bʉyanʌ] *I hit myself*, /ŋu'muŋpu/ [ŋu'moᵘŋbu/ŋu'muŋbu] *I will complete*.

The sequence /uy/ may be reduced to [i] in both stressed and unstressed syllables as in /'puyma/ ['puymʌ/'pimʌ] *back*, /ŋuna'kuypukka/ [ŋuna'guybukʌ/ŋuna'gibukʌ] *show me!*, /ŋu-'muŋpuyppæ/ [ŋu'muŋbuypɛ/ŋu'muŋbipɛ] *I will go for good*.

7. STRESS

Stress is phonemic and contrasts as in 'ama *mother* and a'ma *will get him;* 'kanařa *spoonbill*, ku'narra *that one* and ŋuna'řa *he will spear me;* 'kupurřɔ *road*, ku'punɔ *hit it* and kupu'na *they will see it*.

'ʈitapata	*prong*	'ñañappuniyu	*his father*
ʈi'numuřɔ	*smells it*	ku'puppiʈiŋa	*it goes down*
ʈinu'muřu	*mother's sister*	anku'kaliya	*native man*
ŋupuřa'pɔy	*we all will go*	ŋuruřa'kakka	*I will pull it*
		ŋunapiři'ka	*they will carry me*

Stress appears to be grammatically predictable, usually occurring on the first syllable of the word stem.

8. DISTRIBUTION OF PHONEMES

All single consonants occur initially, medially, and

finally.

The following consonant clusters occur word initially:
mp , ñp , ñṯ , ñm , ññ , ñy , nt , ŋk .

The following consonant clusters occur word medially:
pp , ṯṯ , tp , tṯ , tk , kp , kṯ , kk , řŋ , lk , lm , lŋ , mp , ñp , ñṯ , ñm , ññ , ñy , np , nt , nk , nm , nn , nŋ , ŋp , ŋk , yp , yṯ , yk , ym , yn , yŋ , yr , yw , yy , rp , rt , rř , rl , rn , řpp , řkk , řmp , lpp , lṯṯ , lkk , lmp, mpp , ŋkk , ŋrř , rṯṯ , rtp , rtk , rkk , rlp , rlṯ , rlk , rlm , rnp , rnt , rnk , rnŋ , rŋk , ykk , ypp , rlpp , rlṯṯ , rlkk , rnpp .

The following consonant clusters occur word finally:
řk , lp , lk , rk , rt , rl , rn , rlk .

Examples of all consonant clusters are given in Section 12, Practical Orthography.

Vowels occur singly, never in clusters. /a/ is the only vowel which occurs word initially except in the two words 'iya and 'æywɔ which both indicate *question*. All vowels occur in word medial and final positions. Finally however there is sometimes free variation between vowel phonemes as in /'pukulu/, /'pukulɔ/, /'pukula/ *water*.

9 THE SYLLABLE

There are seven syllable types each having a vowel (V) or word initial syllabic nasal as its peak and differing by the number and position of consonants (C). They are:

C	as in	ñ.'ma	*you (s.) will get*
V	as in	'a.ña	*father, son*
VC	as in	'an.ŋæ	*who?*
CV	as in	ma	*get it!*
CVC	as in	pɔl	*fire*
CVCC	as in	malk	*subsection*
CVCCC	as in	kɔrlk	*swag*

10 DISTRIBUTION OF SYLLABLES

Words consist of from one to ten syllables as in ṯal *desire* and ŋu.na.pi.ři.ru.řa.'kak.ka.ṯæ.na *you (dl. or pl.)*

would have pulled me. The C, V, and VC syllables are limited to word initial position as in ñ.'pɔ.ya *you (s.) go,* a.'pam.pu.řa *he walks* and an.'mɔ.lɔ *well.*

11. INTERPRETATION

Vocoid glides, other than those listed under Section 6, Vocalic Variants, are interpreted on the basis of non-suspect syllable patterns as vowel plus consonants y or w as in 'iya *question marker,* a'pæya *he arrives,* an'paykkirřæ *long,* pɔy *go!,* a'mɔŋpuyppæ *he will go for good,* 'řawu *camp,* ŋaw *yes.*

Word medially the voiceless variants of / p , ʈ , k / are interpreted as geminates / pp , ʈʈ , kk /. This interpretation is based on the voiceless quality of heterorganic stop clusters, the gap in the distribution pattern which would otherwise include heterorganic but not homorganic clusters, and the loss of voicing which occurs when suffixation creates a stop cluster, for example, when the suffix [-ɖan] *feminine* occurs with ['wamut] *name of subsection* or with ['kɔɖɔk]*name of subsection* the forms become ['wamuʈʈan] *name of feminine subsection* and ['kɔʈan] *name of feminine subs*

Word medial /p/ contrasts with /pp/ as in 'wɔrlpu *dragonfly* and 'wɔrlppu *hunt!;* puřupu'ʈařiʈʈa *they will carve them* and muřuppu'ʈařiya *middle aged woman;* an'kapi *that one* and an'ʈappi *initiate;* a'pampuřa *he walks* and 'mamppařakku *your mother;* 'ŋaypuřippæ *we,* ŋupuřa'pɔy *we will go* and 'ŋuppař *cloud.*

Word medial /ʈ/ and /ʈʈ/ contrast as in paliʈi *food* and 'paliʈʈi *bag;* 'pɔřiʈa *upland grass* and 'pɔriʈʈal *rice grass;* 'ŋaʈa *mild oath,* 'ŋaʈʈu *seed of type palm* and a'naʈʈæ *sees him;* a'ʈay *hey! (fem.)* and 'piʈʈay *paddle.*

Word medial /k/ and /kk/ contrast as in 'pukulu *water* and 'pukkulu *forehead;* 'kalikali *tapping boomerang* and 'kalikkali *one of marriageable kinship;* 'mæŋkæ *wife,* 'ʈiŋka *pandanus fruit* and 'miŋkka *sandfly;* 'waykiʈi *may be* and an'paykkirřæ *long.*

Word medial and final [rʈ , rɳ , rř , rɭ] are interpreted as /r/ plus alveolar consonants, that is as / rt , rn , rř , rl /. This interpretation is based on the phonetic [r] quality which is heard between the vowel and the following retroflexed contoid, the occurrence of /r/ as the first member of consonant clusters with all points of articulation except the alveolar, the absence of contrast word initially between retroflexion and non-retroflexion and the economy of four less consonants which results.

/rt/ contrasts with /t/ as in 'wartuŋa *dog* and 'wata *young one;* 'mam

/rn/ contrasts with /n/ as in 'marnŋa *sun* and 'maŋa *jungle;* an'kurn *his subsection* and an'kunkun *heavy.*

/rř/ contrasts with /ř/ as in pur'řaʈʈi *bird* and pi'řaʈʈi *rice;* 'marřa *tail* and 'mařa *comparative.*

/rl/ contrasts with /l/ as in 'marlaŋ *type fish* and 'kalaŋ *hook;* ʈarl *hasten!* and ʈal *desire.*

12. PROPOSED ORTHOGRAPHY

Consonants:	p	ʈ	t	k	ř	l	m	ñ	n	ŋ	w	y	r
Symbols:	**p**	**j**	**t**	**k**	**đ**	**l**	**m**	**ny**	**n**	**ng**	**w**	**y**	**r**

Vowels:	i	æ	a	ɔ	u
Symbols:	**i**	**e**	**a**	**o**	**u**

Stress is unwritten on the first syllable. Elsewhere it is symbolised by a hyphen preceding the stressed syllable.

The cluster /ñʈ/, except when divided by a hyphen is written 'nj' rather than 'nyj' because in English spelling 'y' between consonants is syllabic and because the cluster /nʈ/ does not occur in Burera.

The following words illustrate the orthography and particularly how it appears in all consonant clusters.

Initial Cluster	*Phonemic*	*Orthographic*	*Meaning*
mp	m'pɔnɔ	**m-pono**	*it went*
ñp	ñ'pɔya	**ny-poya**	*you go*
ñʈ	ñ'ʈañʈa	**ny-janja**	*you carry it*
ñm	ñ'ma	**ny-ma**	*you will get it*
ññ	ñ'ñækka	**ny-nyekka**	*you will rest*
ñy	ñ'yalppu	**ny-yalppu**	*you will cook it*
nt	n'ta	**n-ta**	*you will spear it*
ŋk	ŋ'kañʈa	**ng-kanja**	*I carry it*
Medial Cluster			
pp	'wuppu	**wuppu**	*under, in*
ʈʈ	'piʈʈay	**pijjay**	*paddle*

Medial Cluster	*Phonemic*	*Orthographic*	*Meaning*
tp	'watpar	**watpar**	*type oak tree*
tʈ	ʈinku'patpatʈa	**jinku-patpatja**	*type insect*
tk	a'kutkutʈiŋa	**a-kutkutjinga**	*he runs, trots*
kp	'pařakpařak	**padakpadak**	*frogmouth bird*
kʈ	pala'mukʈu	**pala-mukju**	*close your eyes!*
kk	'rakka	**rakka**	*sit down*
řŋ	munŋu'lařŋulař	**munngu-ladngulad**	*light one, bread*
lk	'kalku	**kalku**	*flying fox*
lm	'ʈalmuřu	**jalmudu**	*wood, log*
lŋ	'ʈolŋɔ	**jolngo**	*smoke*
mp	'pampay	**pampay**	*old woman*
ñp	'ŋañpak	**nganypak**	*armlet*
ñʈ	'kuñʈɔŋ	**kunjong**	*tree*
ñm	'mañmak	**manymak**	*right, true*
ññ	apuřiñ'ñækka	**apudiny-nyekka**	*they 2 (fem.) will rest*
ñy	piřiñ'yalppu	**pidiny-yalppu**	*you 2 (fem.) cook it!*
np	an'pařa	**an-pada**	*river mouth*
nt	'panta	**panta**	*leg*
nk	'ranku	**ranku**	*moon*
nm	a'yænmæya	**a-yenmeya**	*what is he doing?*
nn	an'nuřu	**an-nudu**	*male*
nŋ	'manŋa	**mannga**	*jungle*
ŋp	a'muŋpu	**a-mungpu**	*will complete it*
ŋk	'ʈiŋka	**jingka**	*pandanus fruit*
yp	ay'pay	**ay-pay**	*you and I will eat*
yʈ	ay'ʈalappuřɔ	**ay-jalappudo**	*you and I make it*
yk	'waykiʈi	**waykiji**	*maybe*
ym	ay'ma	**ay-ma**	*you and I will get*
yn	ay'na	**ay-na**	*you and I will see*
yŋ	ay'ŋukkuřiñʈiŋa	**ay-ngukkudinjinga**	*you and I turn it*
yr	ay'ruřakakkiʈæ	**ay-rudakakkije**	*you and I pull it*
yw	mun'maywu	**mun-maywu**	*old*

Medial Cluster	*Phonemic*	*Orthographic*	*Meaning*
yy	ay'yalppu	**ay-yalppu**	*you and I will cook it*
rp	'ʈarpař	**jarpad**	*Cypress pine*
rt	'wartuŋa	**wartunga**	*dog*
rř	an'ŋarřappa	**an-ngardappa**	*one*
rl	kun'kɔrlɔ	**kun-korlo**	*dry, bare, dead wood*
rn	'murna	**murna**	*finger, hand*
řpp	'wuřppan	**wudppan**	*emu*
řkk	'ʈařkka	**jadkka**	*water goanna*
řmp	'yæřmpæ	**yedmpe**	*husband, wife's brother*
lpp	'yalppu	**yalppu**	*cook it*
lʈʈ	m'palʈʈiřæ	**m-paljjide**	*hung it up*
lkk	pi'palkkiʈi	**pi-palkkiji**	*it sticks to you*
lmp	an'palmpařæ	**an-palmpade**	*short*
mpp	'mamppuŋku	**mamppungku**	*your mother*
ŋkk	'miŋkka	**mingkka**	*sand fly*
ŋrř	'ŋanarřaŋrřaŋ	**nganardangrdang**	*jaw*
rʈʈ	'yurʈʈi	**yurjji**	*run!*
rtp	ku'nartpa	**ku-nartpa**	*that one*
rtk	ku'yartkuʈumuřɔ	**ku-yartkujumudo**	*cuts it*
rkk	mu'ŋarkkuřumuřɔ	**mu-ngarkkudumudo**	*lights grass fire*
rlp	'wɔrlpu	**worlpu**	*dragon fly*
rlʈ	a'kurlʈiŋa	**a-kurljinga**	*he vomits*
rlk	kuna'kɔrlkařa	**kuna-korlkada**	*mud*
rlm	a'karlmunɔ	**a-karlmuno**	*he got up*
rnp	'řarnpa	**darnpa**	*thigh*
rnt	'mærntæ	**mernte**	*arm*
rnk	'marnki	**marnki**	*understanding*
rnŋ	'marnŋa	**marnnga**	*sun*
rŋk	'marŋkurl	**marngkurl**	*woomera*
ykk	an'paykkirřæ	**an-paykkirde**	*long*
ypp	'ŋayppæ	**ngayppe**	*I*
rlpp	'wɔrlppu	**worlppu**	*hunt!*

Medial Cluster	*Phonemic*	*Orthographic*	*Meaning*
rlʈʈ	anku'ŋarlʈʈa	**anku-ngarljja**	*white*
rlkk	mun'pɔrlkkiʈ	**mun-porlkkij**	*skid mark*
rnpp	'purnppɔ	**purnppo**	*moth*
Final Cluster			
řk	'palmařk	**palmadk**	*wind*
lp	ʈɔlp	**jolp**	*salt*
lk	'mæyælk	**meyelk**	*woman*
rt	'mampart	**mampart**	*plate, billy can*
rk	'ʈiřŋurk	**jidngurk**	*fog*
rl	ñ'ʈarl	**ny-jarl**	*you will hasten*
rn	mærn	**mern**	*cold*
rlk	kɔrlk	**korlk**	*swag*

NOTES

1. The spelling of Burera is retained to agree with Government records and already-published materials. Speakers of the language, however, pronounce the name of their language [buˈraɽʌ], which would be spelt **Pu-rada** by the Proposed Orthography.

2. See Section 11 for interpretation of word medial voiceless stop as a geminate.

Glasgow, D. and Glasgow, K. "The Phonemes of Burera". In Glasgow, D., Glasgow, K., Kirton, J., Oates, W., Sommer, S.A. and Sommer, E.G. editors, *Papers in Australian Linguistics No. 1*.
A-10:1-14. Pacific Linguistics, The Australian National University, 1967. DOI:*10.15144/PL-A10.1*

ANYULA PHONOLOGY

JEAN F. KIRTON

0. INTRODUCTION

The purpose of this paper is to give a description of the phonology of the Anyula[1] language with particular reference to the phoneme, syllable and word levels.[2]

1. PHONEMES

Anyula has 20 consonants which include stops, nasals, laterals, semivowels and the vibrant ř. These contrast as in Chart 1. There are 3 vowels which contrast according to front, mid and back articulation. Allophonic variation is a feature of vowel manifestation.

1.1 Consonantal Description

Chart 1

	Labial	*Inter-dental*	*Alveo-dental*	*Alveolar*	*Retro-flexed*	*Velar*
Stops	b	d̲	dj	d	ḍ	g
Nasals	m	n̲	nj	n	ṇ	ŋ
Laterals		l̲	lj	l	ḷ	
Semivowels /Vibrant	w		y	ř	ṛ	

1.11 Consonantal Contrast

Stops contrast as in:

dubaga	'grinding stone'	banjdja	'red ant'
wudayi	'grandchild'	dambiṛa	'spear shaft'
gudjaga	'mother'	djandini	'that (fem.)'
gudařgu	'brolga'	dangudanguř	'red'
gudandu	'hard'	dumandalu	'to get'
wugawu	'word (genitive)'	gambaa	'in the sun'

Nasals contrast as in:

ṛumanŋu	'single man'	namba	'there'
wunaga	'younger sibling'	ŋanda	'where?'
wunjada	'father'	banjdja	'red ant'
wunala	'kangaroo'	manga	'body'
awuna	'fog'	maṇga	'grub'
maŋařa	'food'	gaŋga	'because'

Laterals contrast as in:

nalanu	'ti-tree bark'	–	–
walja	'dugong (sea mammal)'	–	–
yala	'creek'	abařal	'black cockatoo'
yaḷa	'new foliage'	mawabaḷ	'wild potato'

Laterals /ř/ and /ṛ/ contrast as in:

ŋali	'what?'	–	–
walja	'dugong (sea mammal)'	–	–
ŋali	'we two (incl.)'	walguř	'asleep'
yaḷa	'creek'	aḷgu	'fish'
ŋařri	'really!'	ařgu	'other'
agaṛi	'at a western place'	–	–
-muṛuma	'to shut'		
-muřuma	'to cut'		

Semivowels contrast as in:

walguřa	'big'	niwanji	'animal flesh'
yalguyi	'young fellow'	miyadji	'widower'
ṛawuřgi	'water seepage'	wiṛaŋu	'concerning'

Labials contrast as in:

bařaḏa	'mother'
malala	'emu (bird)'
waṛaba	'no'

Interdentals contrast as in:

ŋaṉal	'body hair'	ṉanawawidji	'married man'
naḻanu	'ti-tree bark'	ḻambidji	'wind'
ŋaḏařa	'we two (excl.)'	ḏambiṛa	'spear shaft'

Alveodentals contrast as in:

djilili	'spring of water'	bulawidji	'white hair'
njiba	'calm'	-maṉḏaninja	past continuous tense
–	–	biṛililji	'rosella (bird)'
yiliři	'blood'	řamiyimiyi	'a fly'

Alveolars contrast as in:

dangudanguř	'red'
langalanga	'quickly'
nangawa	'lagoon'
řaŋadjařa	'lightning'

Retroflexes contrast as in:[3]

ŋaṇa	'I'
yaḷa	'new foliage'
maḍa	'also'
awaṛa	'place'

Velars contrast as in:

gaŋga	'because'
ŋaŋgař	'a cold'

1.12 Consonantal Variants

The series of stops vary according to voicing, voicelessness and voiceless aspiration, this latter feature being more apparent in speakers who have had most contact with English. These allophones occur in free variation but the tendency has been noted for voicing to be more frequent between vowels and at the onset of a stressed syllable in word medial position.

/dj/ is manifested by two variants according to release. The unreleased variant occurs in syllable final position and the released variant elsewhere.

(unreleased)	wadjbaya	'call out!'
	budidjbudidj	'tangled'
(released)	djilili	'spring of water'
	badjiwa	'there he is'

There is variation of a restricted type between the phonemes /dj/ and /g/. The restriction is morphologically predictable. Variation occurs in initial position in pronominal verb prefixes. In an area of noun affixation gi- and dji- occur, the former being used exclusively by male speakers and the latter by female speakers. It may be that the fluctuation of phonemes /g/ and /dj/ has resulted from a breakdown of a similar previous distinction in usage of verb prefixes.

giyawiŋga / djiyawiŋga 'he walked'
galuwadjaŋga / djaluwadjaŋga 'they fished'

/ḍ/ is manifested by [d] in word initial position.

['njadʊ'maɪyʌ] /njaḍumayʌ/ 'get him!'
['dʊmʌn̪'d̪alʊ] /ḍumand̪alu/ 'to get'
['aḍi'yaŋo] /aḍiyaŋu/ 'new (fem.)'
[ti'yaŋo] /ḍiyaŋu/ 'new (masc. male speaker)'

In intervocalic position /ḍ/ has the free variants [ḍ] and [ř].

['aḍʊ]/['ařʊ] /aḍu/ 'girl'
[tjʌ'gaḍʌ]/[tjʌ'gařʌ] /djagaḍa/ 'a group'

/nj/ has unreleased and released variants which occur unreleased in syllable final position and released elsewhere.

(unreleased)	ganjmaḍa	'two'
(released)	njigunja	'your (sing. masc. subj.)'

Preceding the velar stop, /nj/ is manifested by a backed variant [n̻j] or less frequently by the alternate variant [ŋ]. A single instance of this variation has been recorded in word final position.

[ˈkaṇaᴵnjˈgařɪ]/[ˈkanaᴵŋˈgařɪ] /gaṇanjgaři/ 'I heard'
[ˈtjaᴵnjkʌ]/[ˈtjaᴵŋkʌ] /djanjga/ 'stone'
[ˈkiyinjˈgiyinj]/[ˈkiyiŋˈgiyiŋ] /giyinjgiyinj/ 'flying fox'

The nasals /n/ and /nj/ have a voiceless allophone in word initial consonant position in the syllable type CCV.[4]

[Nta'ŋořʊ] /ndaŋuřu/ 'your nose'
[Npaᴵ'yařʌ] /nbayařa/ 'was falling'
[NJkʌřinjˈdjařʌ] /njgařinjdjařa/ 'was hearing'

/ř/ has the variants [ř], [r̃], [ṛ], and [R̆]. [ř] is the usual manifestation of this phoneme in carefully articulated speech. [r̃] is a free variant in emphasised utterances and in word final position. [ṛ] occurs as a free variant in word initial position, and in carelessly articulated speech it varies freely in all positions other than in a consonant cluster. For example, if the speaker is weary [ṛ] tends to be the manifestation of /ř/. [R̆] may be the variant in phrase final position or in cluster with a voiceless stop.

[ˈyʊřʊˈdjʊřʊ] /yuřudjuřu/ 'a long way'
[ˈṛɪmʌˈŋaᴵtji]/[ˈřɪmʌˈŋaᴵtji] /řimaŋadji/ 'those two'
[ˈwaᴵnjtjiř]/[ˈwaᴵnjtjiř]/[ˈwaᴵnjtjiR̆] /wanjdjiř/ 'leaf'
[ṛʌˈwařgɪ]/[ṛʌˈwaR̆kɪ] /ṛawařgi/ 'water seepage'

1.2 Consonant Distribution

Consonantal occurrence may be described according to distribution into the phonological word.

Word initial: Singly, all consonants except /lj/, /ṇ/, and /l̥/ occur. Recorded di-clusters are restricted to /nb/, /nd/, and /njg/, the nasal always being voiceless.

Word medial: All consonants are found in intervocalic position. The following di-clusters occur:

(a) two stops: only /djb/, /djg/.

(b) nasal and stop: These may be homorganic at all six points of articulation as shown in Chart 1. In

heterorganic clusters /nj/, /n/, /ṇ/, and /ŋ/ precede /b/ and /g/. /ṇ/ and /ŋ/ precede /dj/.

(c) two nasals: /nj/, /n/, /ṇ/, and /ŋ/ precede /m/. /n/ and /ṇ/ precede /ŋ/. /ŋnj/ also occurs.

(d) /l–/ and /ř–/ initial clusters: /l/ and /ř/ precede /b/, /g/, /m/, /ŋ/, and /w/. Additionally /řnj/ has been noted.

(e) retroflex-initial clusters: /ṛ/ precedes the nasals /m/, and /nj/. /l̤/ precedes /g/.

Chart 2

CONSONANT DI-CLUSTERS

	b	d̲	dj	d	ḍ	g	m	nj	ŋ	w
dj	djb					djg				
m	mb									
n̲		nd̲								
nj	njb		njdj			njg	njm			
n	nb			nd		ng	nm		nŋ	
ṇ	ṇb		ṇdj		ṇḍ	ṇg	ṇm		ṇŋ	
ŋ			ŋdj			ŋg	ŋm	ŋnj		
l	lb					lg	lm		lŋ	lw
l̤						l̤g				
ř	řb					řg	řm	řnj	řŋ	řw
ṛ							ṛm	ṛnj		

Exception: Three consonant clusters. Only two words have been consistently phonetically recorded as having a 3-consonant cluster:

[ʌ·bɪřŋgo·bɪřŋgo] /abiřŋgubiřŋgu/ 'kingfisher'

[mʌ'wʊřŋkʊ] /mawuřŋgu/ 'fishing line'

Because of the strong pressure for stress to occur on the penultimate syllable, the suspect sequence /řŋg/ is analysed as being a cluster of 3 consonants.

Word final: Consonants are less frequent than vowels in this position. /ř/ and /l/ occur most commonly. /dj/, /nj/,

/n/, and /l/ may also be found. Consonant clusters do not occur.

Examples of Single Consonant Occurrence

Initial and medial: See **1.11**

Final: warař 'mud', wudjul 'grass', buridjburidj 'willy-wagtail (bird)', wařinj 'egg', ŋuřbun 'scrub', mawabal 'wild potato'.

Examples of Consonant Cluster Distribution

Initial: nbayařa 'was falling', ndaŋuřu 'your nose', njgařinjdjařa 'was hearing'.

Medial: wadjbaya 'call out!', awidjgu 'species of lizard', namba 'there', ŋanda 'where?', ginjbuda 'flying fox', wunjdjuř 'fine grass', djumanjgařa 'long', ganjmada 'two', lanba 'nest', anda 'she', anga 'up', anmaya 'stay there!', rumanŋu 'single man', awanbul 'species of frog', ndaminmindjal 'your eyebrows', abindawara 'bag', manga 'species of grub', wunŋař 'smoke', nanulawuřiŋdjaŋu 'river crossing', bařuŋgu 'earlier today', winiŋmař 'species of gum tree', miřiŋnjuŋu 'a lying position', mayulbu 'rope', walguř 'asleep', aralmuř 'kookaburra', mimalŋu 'dark of night', djulwiřiři 'hawk', algu 'fish', řiřbařiřba 'seagull', ařgula 'one', wuřmul 'lazy', nandayiřnji 'her fingernail', yuřŋumanda 'continuously', amirřa 'crocodile', wirmuř 'spear prong', abirnji 'wax'.

1.3 Vowel Description

The three vowel phonemes are /i/, /a/, and /ʊ/. The back vowel is written phonemically throughout as /u/ for convenience.

Chart 3

Front	*Mid*	*Back*
i	a	u

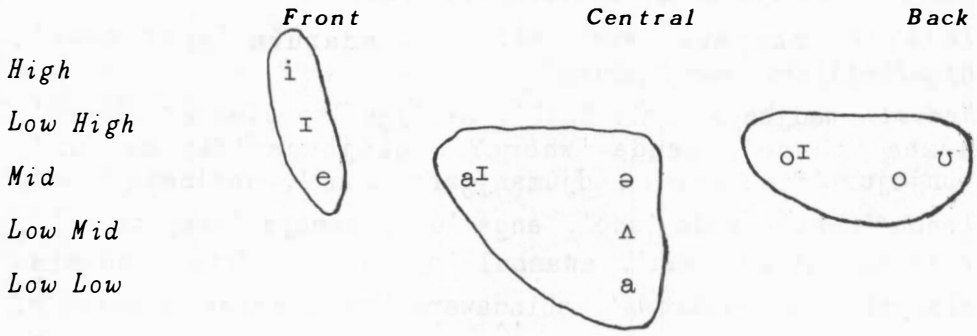
1.31 Vowel Contrast

The three vowels contrast as in:

giwiŋga 'it came (non-food-class subject)'
gawiŋga 'you came (sing.)'
guwiŋga 'it came (food-class subject)'
ŋali 'we two (incl.)'
ŋala 'but'
ŋalu 'south'

1.32 Vocalic Variants

Chart 4



Each of the vowel phonemes has several allophones as illustrated in Chart 4. There is free variation of the non-glide allophones within each phoneme but certain tendencies of occurrence have been noted. Additionally, each vowel phoneme has a lengthened allophone conditioned by occurrence in a stressed syllable.

/i/ has the variants [i], [ɪ], and [e]. [i] tends to occur contiguous to /dj/, /nj/, /lj/, and /y/, and in stressed syllables. [e] tends to occur contiguous to retroflexed consonants and [ɪ] elsewhere.

/a/ has the variants [a], [ʌ], [ə], and [aᴵ]. [a] tends to occur in stressed syllables except preceding alveodental consonants. [aᴵ] precedes /dj/, /nj/, /lj/, and /y/. [ʌ] tends to be found in unstressed syllables and [ə] in less carefully articulated speech.

/u/ has the variants [ʊ], [o], and [oᴵ]. [oᴵ] precedes /dj/, /nj/, /lj/, and /y/. [o] tends to occur contiguous to a velar consonant. Elsewhere there is free variation between [o] and [ʊ].

Vowel allophones are illustrated below:

['maᴵnjtji'gařʌ] /manjdjigařa/ 'brother's wife (woman speaker)'

[ṛe'dinjtjʌ] /ṛidinjdja/ 'yesterday'

[ˈkilɪˈlidjʌ] /gililidja/ 'he sent it'
[ˈwoɪtjpɪ] /wudjbi/ 'egg'
[řʌˈbʊlbʊlˈgidjʌ] /řabulbulgidja/ 'species of bird'
[ˈṛogo] /ṛugu/ 'dry'

1.4 Vowel Distribution

Distribution of vowels into syllables has the one restriction that /a/ is the only vowel found in syllable types V, VC.

Within the word, /a/ only occurs in word initial position. All vowels may precede or follow all consonants with the two exceptions that /i/ has not been recorded following /n̲/ nor /u/ following /lj/.

Sequence /aa/: This is regarded as two adjacent vowels rather than a single long vowel because (i) in slow speech there is a clear re-initiation of the vowel, particularly where the second /a/ is in a stressed syllable; (ii) where the morpheme -a̲ is suffixed to a stem final /a/, the affix -a̲ acts as an additional syllable to cause forward shift of penultimate stress. For example, ˈyinda 'you (sing.)' plus -a̲ (accompaniment marker) becomes yinˈdaa 'with you'.

In faster speech, particularly where the second /a/ is in an unstressed syllable, it tends to occur as length on the previous syllable or may be lost.

2. UNITS LARGER THAN THE PHONEME

A full study of the Anyula phrase or breath group has not yet been made. For the purpose of this paper the phonological phrase may be defined as a word or group of words occurring between pauses and carrying an intonation contour. The remainder of this section will be given to a description of the phonological syllable and phonological word in Anyula.

2.1 Phonological Syllable

A phonological syllable may be defined as having a nucleus consisting of a single vowel and potential for the occurrence of prenuclear margin consisting of one consonant or a cluster of two consonants, and a single consonant postnuclear margin. Syllable margins may be perceived by distribution of segmental phonemes, that is, /l/, /l̤/, /ř/, /m/, /n̲/, /n/, and /n̤/, may occur as consonant of a VC syllable; nasals, /dj/, /l/, /l̤/, /ř/, and /ṛ/ occur as

postnuclear margin in a CVC syllable. (For vowels see **1.4.**) Postnuclear syllable borders may be perceived by a potential change of intonation level and potential stress occurrence.

Syllable Types and Distribution

The most frequent forms are CV and CVC, and these, with V and CCV, may occur in any position in the phonological word. VC syllables are found only in word initial and medial positions.

The vowel of V and VC syllables is always /a/.

V syllable:

a.lu	'they (plural)'
dji.ya.a.da.ři	'he was cold (woman speaker)'
wun.da.a	'in the tree'

VC syllable:

an.da	'sea'
ga.al.gal.banj.dji	'you are washing (clothes)'

CV syllable:

bu.dji.ma.la	'rainbow'

CVC syllable:

wal.guř	'asleep'
na.wim.bi	'bee'

CCV syllable:

nda.wi.ni	'your name (sing.)'
a.biř.ŋgu.biř.ŋgu	'kingfisher'

Syllables may vary non-contrastively in length according to their position in the phonological word and phrase. Greatest length is found in the nucleus of the phonological phrase and shorter length in non-nuclear position. There may be a voiceless allosyllable in syllable final position in the phonological phrase.

2.2 Phonological Word

A phonological word in Anyula is defined as a minimal utterance, which, according to current data, consists minimally of two syllables and maximally of ten syllables.[5]

It may also be defined according to certain border phenomena; that is, syllable distribution, potential lenisness or devoicing of the final syllable and potential variant phonemic and allophonic manifestation in word initial position. (For detail see **1.2, 1.4, 2.1.**)

Stress: Stress is heard as slight intensity associated with length. In words of four or more syllables where more than one stress occurs, there is no clear regular distinction between primary and secondary stress. Differing intensity of stress is therefore taken to be non-contrastive.

The following rules of stress have been formulated on the basis of predictable stress behaviour and on the basis of trends noted:

(1) Stress never occurs on the final syllable nor do two stresses ever occur on two successive syllables.

(2) In 2-syllable words stress is initial.

'adu	'girl'
'ŋawu	'cloud'
'ŋuřbun	'scrub'

(3) In 3-syllable words stress is penultimate, with a tendency noted in some words for stress to vary from penultimate to initial.

ni'wanji	'animal flesh'
ŋam'bala	'we (plural incl.)'
ganj'maḍa / 'ganjmaḍa	'two'

(4) In 4-syllable words stress occurs initially and on the penultimate syllable.

'mařu'wařa	'cousin'
'alanj'djilu	'to the camp'
'yuřŋu'manda	'continuously'

(5) In words of five or more syllables stress occurs:

(i) on the penultimate syllable;

(ii) word stem initial, unless this immediately precedes the penultimate syllable;

(iii) word initial, except where there is a single syllable prefix.

(Underlining below indicates prefixation.)

'mařuwa'řala	'with the cousin'
a'yilwi'yilwi	'duck'

dji'walanj'mandji	'it is emerging'
'gumba'ramanda'ninja	'he was hitting himself'
'gambala'wuturu'manjdji	'we are all eating'

A tendency has been noted for stress to occur on alternate syllables preceding the penultimate syllable, and there may be non-significant variation from the above rule (ii) to this. The word for 'he was hitting himself' in the above examples may be stressed as follows: 'gumbara'manda'ninjdja.

It will be noted throughout that the strong constant stress pressure is for the occurrence of penultimate stress.

Where the above rules of stress are kept, stress is considered to be predictable and therefore does not require to be indicated. Where there are exceptions and stress is therefore unpredictable stress will be written and indicated by the symbol /'/ preceding the stressed syllable.

NOTES

1. Anyula is the language of an Australian Aboriginal tribe of about 150 people who are mainly situated at or around Borroloola in the Gulf Country of the Northern Territory. The Aboriginal settlement at Borroloola includes Aborigines from a number of other tribes, but most notably from the Garawa, who, in the wet season, may outnumber the Anyula. Certain Garawa words are in such common use that young adults consider them to be Anyula e.g. **wabuda** 'water'. A few Kutanji words are also known to be in use. A form of English is spoken by the majority of the Anyula but their own language is virile. The extent of influence of these other languages on Anyula is not known.

In Anyula there is some affixal variation determined by the sex of the speaker. Language examples in this paper are from both men's and women's speech.

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2. The concept of language as a hierarchical structure which may be analysed at different levels is taken from Kenneth L. Pike (1954, 1955, 1959).

3. Alternatively the retroflex consonants /ḍ/, /ṇ/, and /ḷ/ may be analysed as rC where /ṛ/ is the unit of retroflexion and C the alveolar consonant. This gives greater economy of phonemes. However, analysis of the series as unit phonemes has been preferred for the following reasons:

(i) Phonetically these are heard as single units. /ṛm/ and /ṛnj/ are phonetically longer than /ḍ/, /ṇ/, and /ḷ/.

(ii) Phonemically they pattern as do the single consonant units. They are found in phoneme positions

comparable with the corresponding series of interdental, alveodental and alveolar consonants. In word final position there is only basis for occurrence of a single consonant and /l̤/ is found in this position.

4. [ᵈn] has been recorded as a variant of /n/ in a few instances from one or two of the old men who have less frequently helped as informants.
e.g. [ˈlaᵈnkʌ]/[ˈlankʌ] /langa/ 'sea turtle'.

5. The one known exception to this is [ˈye:] /yi/ 'yes' which seems to be of English origin. But even this occurs as /yiyi/ in the usage of some of the older men.

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SYLLABLE PATTERNING AND PHONETICALLY COMPLEX CONSONANTS IN SOME AUSTRALIAN LANGUAGES

W.J. OATES

0. INTRODUCTION

Some light is thrown on problems pertaining to the phonemic interpretation of phonetically complex consonants or consonant sequences in some Australian languages by a discussion of a kin problem in a New Guinea Highland language. Darlene Bee in a paper entitled "Usarufa Distinctive Features and Phonemes"[1] offers two solutions to a problem in the phonemics of Usarufa concerning the interpretation of the sequence glottal plus consonant and of long nasals.[2] Solution 1 (Cluster Solution) reads: "... interpret sequence of glottal plus consonant as clusters of two diverse phonemes". Solution 2 (Unit Solution) reads: "... interpret sequence of glottal plus consonant... as single unit phonemes".[3] The phonemes of the two solutions are as follows:

SOLUTION 1 (Unit Solution)	*SOLUTION 2 (Cluster Solution)*
p t k ʔ	p t k ʔ
	ʔp ʔt ʔk
m n	m n
	ʔm ʔn
w y	w y
	ʔw ʔy

In summarising the merits of each solution Bee says that if Solution 1 is followed it gives a simple complimentation statement for seven consonant phonemes and a single glide phoneme (/ʔ/). If Solution 2 is followed it gives an increase in the number of phonemes but "the increase is balanced by an exceedingly simple statement of syllable structure with no problem as to borders. Also, some aspects of morphophonemic change are more easily stated with this

Oates, W.J. "Syllable Patterning and Phonetically Complex Consonants in Some Australian Languages". In Glasgow, D., Glasgow, K., Kirton, J., Oates, W., Sommer, S.A. and Sommer, E.G. editors, *Papers in Australian Linguistics No. 1.* **A-10:29-52**. Pacific Linguistics, The Australian National University, 1967. DOI:*10.15144/PL-A10.29*

interpretation".[4] Bee leaves to the objective evaluation of the reader which of the two solutions is to be preferred.

Attention is drawn to Bee's classification of Usarufa phonemes into four classes: Consonants, Vowels, Liquids, and Glides. Consonants described as consonantal plus vocalic minus fill a consonant slot; Vowels described as vocalic plus consonantal minus fill a vowel slot; Liquids, both consonantal and vocalic plus may fill either a consonant or a vowel slot; but Glides, being both consonantal and vocalic minus fill neither a consonant nor a vowel slot. In other words, they are undefined as to C or V class except to say that they are neither. Because it has been left to the reader's choice as to whether glottal plus consonant is a single complex phoneme or a cluster of two diverse phonemes, here too there exists an area which is undefined by CV analysis, not as to class but as to whether there are one or two units. Bee's paper is most valuable in so succinctly exposing this problem of the interpretation of undefined data. It is not always possible to set up a grid from non-suspect C and V patterns into which all data can be fitted on that level of analysis without either forcing it or coming into conflict with other phonemic premises. If, when dealing with undefined data, more than one level of analysis is allowed for, the conflict between two phonemic procedures (that of distribution of phones and phonemes and that of interpretation) is eliminated. If two levels of analysis are accepted for Bee's material, both her Solutions 1 and 2 can be adopted together thus giving the benefit of simplicity of each solution at their respective levels: Solution 1 on the segmental level, Solution 2 on the syllable level.

The procedure is visualised as set out in the following chart:

LEVEL	*DATA*	*PROCEDURES*	*LINGUISTIC CONCLUSION*
Syllable	Etic Syllable	Distribution within CV syllable	Emic Syllables
	↑ CV grid	↑ CV analysis (possibility of some slots undefined)	
	↑	↓	
Segmental	Phonetic Data	Separating and uniting procedures	Phonemes

In applying this procedure to an Usarufa word like ké?ò?kè?ʌ *every kind*, a problem is reached when the sequence ?k occurs, as no non-suspect pattern in the language gives clear indication as to whether this is CC or C or neither; it is an undefined slot. If glottal existed in the language only in such sequences as ?k, the interpretation of such sequences would be clear, but conflict of interpretation arises because of the occurrence of glottal elsewhere in the language in mutually exclusive distribution with the manifestation in a sequence. Diagrammatically the problem and its solution may be represented as follows:

LEVEL	*INTERPRETATION*						*LINGUISTIC CONCLUSION*
Syllable	Of syllables	CV	CV	CV	CV		Syllable units
	CV grid (established on non-suspect data)	CV	CV	(?)V	CV		One undefined slot
Segmental	Of segments	CV ké	CV ?ò	CCV ?kè	CV ?ʌ	*every kind*	Phonemes

This solution suggests that for ease of description the undefined slot be considered as two phoneme units on the segmental level and one syllable unit on the syllable level.[5] It will be noted that the CV grid is set up entirely on non-suspect data. If it can be shown that the questionable slot in the grid is not really questionable, doubt of its interpretation is removed on both the syllable and the segmental level. But while doubt exists an arbitrary either/or decision (one or two) results which at this point in the analysis is neither desirable nor necessary.

Following the above analysis the Usarufa phoneme chart would be as follows:

SEGMENTAL PHONEMES				*SYLLABLE ITEMS*[6]		
p	t	k	?	?p	?t	?k
m	n			?m	?n	
w	y			?w	?y	

We will now proceed to show how such a principle assists

in describing some areas of phonemic analysis in Australian languages.

1. PREDOMINANT SYLLABLE PATTERNS IN AUSTRALIAN LANGUAGES

There are two prevailing non-suspect syllable patterns common throughout Australian languages, CV and CVC. In some languages as Gugu-Yalanji (Cape York) combinations of these two patterns comprise 90% or more of the words of the language. They are the only two patterns noted in other languages such as Yugambe[7] and Walbri[8]. In Chart A examples are listed from fifteen representative languages in which these syllable patterns occur.

2. SYLLABLE CONSONANT/CONTOID FILLERS

In many Australian languages the consonant fillers of these two prevailing patterns manifest certain common characteristics. The characteristics pertinent to the thesis of this paper are here listed. They divide the fillers of the consonant slots into four different consonant types:

(i) The almost universal phenomena of medial clusters of two emic (non-suspect) consonants[9] (C type 1-2).

(ii) But note, some languages manifest etic clusters of three and some of four medial contoids.

(iii) The most common two contoid clusters are stop-nasal or nasal-stop clusters with homorganic clusters (C type 1-2A) occurring statistically more frequently than heteroganic clusters[10] (C type 1-2B).

(iv) The absence of retroflexed oral resonant (usually symbolised /ṛ/ or /r/) word initial[11] with the exception in some languages of just a few words[12] (C type 3A).

(v) The rare occurrence of any retroflexed contoid word initial[13] (C type 3B). Their distribution is similar to that of the retroflexed oral resonant being found usually between vowels or in medial consonant clusters.

(vi) But note, if in a language retroflexed oral resonant may be found word initial, then usually the other retroflexed contoids also occur word initial, but if retroflexed oral resonant does not occur

word initially, so usually neither do other retroflexed contoids.

(vii) The frequent occurrence of retroflexed oral resonant syllable finally[14], usually word finally[15] (C type 4).

3. INTERPRETATION OF HOMORGANIC NASAL-STOP SEQUENCES

3.1. Problems of Interpretation in some languages (such as Gugu-Yalanji)

There is plenty of evidence to show that homorganic nasal-stop sequences are very close-knit in Australian languages. In some languages the question arises whether they function as one unit as in Aranda and as M.C. Cunningham has interpreted them in Alawa[16], or as a sequence of two units. The problem of interpretation arises in languages in which they are part of a sequence of more than two consonants particularly if such sequences occur in only a small percentage of words as in Wik-Munkan and Gugu-Yalanji. In the latter language in about five per cent of words homorganic nasal-stop clusters occur in a medial cluster of three contoids the first member of which is l, r, ř, or y.

EXAMPLES:

wa–l̲m̲b̲–a *log;* yi–ř̲m̲b̲–a *three prong spear;* wa–r̲ŋ̲g̲–u *sleep;* wa–r̲n̲d̲–il *wake up;* wa–y̲m̲b̲–il *soft;* bu–ř̲ŋ̲g̲–uy *snore.*

The question arises whether, to fit the permissible non-suspect sequence of two medial consonants, the sequence patterns as one phoneme or whether it patterns as a sequence of two phonemes. Our initial interpretation[17] of regarding these emically as two separate phonemes in a medial cluster of three consonants forming a third, limited, consonant vowel pattern, CCV (and also CCVC), was somewhat arbitrary though it proved a workable solution as trial literacy showed. (The medial nasal consonant of the cluster was taught as a continuant.)

The following analysis suggests a better solution. It postulates that:

(i) the homorganic nasal-stops are syllable units mb, nd, ŋg, in certain environments. They are symbolised as NS in this paper;

(ii) their structure is complex, manifesting a fusion of two component parts in some environments and so

function as one syllable unit, but in other environments their phonetic components function as two phonemes, m + b, n + d, ŋ + g, symbolised as the /N/ and /S/ phonemes in this paper;

(iii) the component parts of the NS syllable unit both retain their phonemic status when viewed solely on a segmental basis.

3.2. Interpretation in Gugu-Yalanji of the NS Syllable Unit

The postulation of the NS syllable unit in Gugu-Yalanji is based on two non-suspect patterns, CV and CVC, which limit the permissible word medial consonant clusters to two based on the non-suspect pattern of not more than two. Thus in the above contoid clusters of three, the homorganic nasal-stops are interpreted as syllable units mb, nd, ŋg, filling a single consonant slot.

3.3. Binary Nature of the Homorganic Nasal-Stop Phonemes in Gugu-Yalanji

The NS units exhibit complexity in that in some environments their component parts function as separate phonemes. On the phonetic level there are five phones in the homorganic nasal-stop series, N, S, NS, N-(S), (N)-S. On the syllable level three contrasts exist, /N/, /S/ and NS. NS is in phonologically predictable variation with /N/ + /S/ where /N/ is homorganic with regard to point of articulation with /S/. On the syllable level NS fills two different types of syllable slots, a CC consonant slot and a C consonant slot, creating two (with a possible third) type of homorganic nasal-stop sequence as follows:

(i) $N\text{-}S_1$ (CC) type where the nasal fills one consonant slot and the stop another. It occurs except following r, ř, l, or y and the first consonant of a suffix morpheme.

Phonemic Evidence: Based on the non-suspect cluster of two as in gunba *finish*, the mb as in gambi *clothes* patterns as a sequence of two consonants.

Morphophonemic Evidence: Morpheme breaks between nasals and stops suggest the nasal closes one syllable and the stop opens the next. Compare:
bunday *sit*, bun-dan-day *sitting;*
duŋay *went*, duŋan-duŋay *going*.

(ii) NS_2 (C) type where, based on the total permissible sequence of consonants as two, the homorganic nasal-

stop sequence fills one consonant slot. It occurs only following r, ř, l and y or is the first consonant of a suffix morpheme.

Phonemic Evidence: wal–mba *log*, war–ŋgu *sleep*, bur–ŋguy *snore*, way–mbil *soft*.

Morphophonemic Evidence: In the following selection of locative allomorphs, mb and ŋd appear to fill one consonant slot following the CV shape of the majority: -ba, -bu, -ŋa, -ŋu, -mba, -nda, -ndu locative.

Compare buwun–ba *into the boat*, gabay–mba *on the ant bed* (both CV-CVC-CV shape); bana–ŋa *for water*, bambu–ndu *to Bambu* (CVC(C)V-CV shape).

(iii) $N\text{-}S_3$ or NS_3 is postulated as a third type to account for all the data. This type is indefinite. It is unclear whether it is a single of a double consonant because the slot is not clearly defined as to whether it is a single slot or a sequence of two. It occurs other than in the two environments listed above. In a word like waŋguriga *to ask*, there is doubt whether the syllables are wa–ŋgu–ri–ga or waŋ–gu–ri–ga.

Thus NS consists on the syllable level of three allotypes, $N\text{-}S_1$ and NS_2 which are in mutually exclusive distribution, and $N\text{-}S_3$ or NS_3 which is regarded to be in free variation with $N\text{-}S_1$ and NS_2 in a third environment.

3.4. Phonemic Status of Component Parts of the NS Unit in Gugu Yalanji

The component parts of the NS unit both retain their phonemic status even when they occur as NS_2, each component being an allophone of the phoneme in isolation. Where N_1 represents the nasal of NS and N_2 represents other nasals, N_1 occurs only preceding a homorganic stop, N_2 occurs elsewhere. Where S_1 represents the stop of NS and S_2 represents other stops, S_1 occurs only following a homorganic nasal, S_2 occurs elsewhere. Compare:

gambi *clothes*, gami *grandfather*, gaba *rain;*

jaŋga *large stone*, miŋu *hook*, jagal *overflow*.

Structurally NS is similar on a morphological level to morphemes which may be bound or free. For example, the component parts of *I will* fall into separate morphological slots (cp. $N\text{-}S_1$), but in *I'll* they are fused into the one morphological slot (cp. NS_2), though the component *I* still

retains its pronominal status and the component *'ll* retains its verbal status.

In summary, in Gugu-Yalanji there are consonants which operate on two levels:

(i) on the phoneme level nasals and stops function as the phonemes /N/ and /S/;

(ii) on the syllable level the homorganic nasal-stop sequence may manifest itself as a combination of the phonemes /N/ + /S/ or as the syllable unit, NS.

4. INTERPRETATION OF RETROFLEXED CONTOIDS

One of the noted features of Australian languages is the series of retroflexed contoids.[18] Traditionally these have been considered as phonetically simple contoids filling a single consonant slot. This analysis has been supported by the fact that it puts them into a neat series both laterally and laminally, and by the fact that as fillers of a single consonant slot they fit the customary CV patterns of the language.

However, in some Australian languages retroflexion exhibits similar complex characteristics to the homorganic nasal-stop series in Gugu-Yalanji in that it has closely related phonetic features of (a) retroflexion, (b) laminal feature, which often manifest themselves as syllable units but may also manifest themselves as separate components.

4.1. Binary Nature of Retroflexion in Tiwi[19]

In Tiwi the phenomena of retroflexion exhibits both the above phonetic characteristics and like the homorganic nasal-stops in Gugu-Yalanji fills, according to different environments, both a one consonant slot and two consonant slots on the syllable level. However, in Tiwi non-suspect clusters of three consonants occur which allow all of the retroflexed series to fit into two consonant slots. In other languages such as Nyangumarda and Wailbri (see Chart E) it is necessary to postulate the retroflexed series as syllable units since these languages have no larger clusters than two non-suspect consonants.

In the following argument, R_1 represents retroflexed oral resonant, RL represents retroflexed contoids. RL consists of the following phonetic features: R - feature of retroflexion; L - laminal feature which has three different manifestations: Ls, a feature of complete stricture; Ln, a

feature of nasal release; Ll, a feature of lateral release. On the phonetic level there are five phones in the retroflexed contoid series: R, L, RL, R(L), (R)L. On the level of contrast and mutually exclusive distribution these form three phonemes: /R/, /L/, /RL/[20] as follows:

/R/ *phoneme:* The feature of retroflexion R is a sub-member of the retroflexed oral resonant R_1, R occurring only in association with L (Ls, Ln, Ll), R_1 occurring elsewhere.

EXAMPLES:

wurta *they;* arnapa *wait;* parlini *old;* (cp. aripa *right side;* kuriwa *morning*).

/L/ *phoneme:* Each of the three elements of the laminal feature L (Ls, Ln, Ll), is a sub-member of each of the following phonemes, /t/, /n/, /l/, respectively, occurring in mutually exclusive distribution with them as follows: Ls, Ln, Ll occur only in association with R, /t/, /n/, /l/ occur elsewhere.

EXAMPLES:

wurta *they* (cp. yati *one item, masculine);* ta:birni *yesterday* (cp. miŋani *now);* parlini *old* (cp. tulguli *bitter*).

/RL/ *phoneme:* This phoneme is postulated as follows: /RL/ contrasts with /t/, /n/ and /l/.

EXAMPLES:

yarti *earth,* yati *one item, masculine;* tabirni *yesterday,* bamagabamini *wide;* parlini *old,* ta:liki *tongue,* kalitaři *ear.*

/RL/ also contrasts with /R_1/. Because no contrast exists between RL and R_1L, RL may be regarded as R_1L since the consonant R_1 is a feature of the language.

In practical application the postulated phonemes pertinent to the retroflexed series in Tiwi are: /t/, /n/, /l/, /r/, /rt/, /rn/, /rl/. These are similar to the phonemes pertinent to the prenasalised stops in Gugu-Yalanji. They are similarly structured and their functional load is similar.[21]

5. OBJECTIONS TO ANALYSIS

The main objections to regarding retroflexion as a complex phoneme are:

(i) it does not fit the CV patterns of the language as well as the traditional analysis of regarding it as

a phonemically simple phoneme;

(ii) /r/ being a weak semi-vowel is not likely to influence stronger phonetic features such as stop and nasal contoids.

6. DEFENCE OF ANALYSIS

6.1. CV Patterning

It has already been shown that medial clusters of two consonants is a common feature of Australian languages and that the most usual place for the occurrence of retroflexion is intervocalic. Thus the interpretation of a medial retroflexed consonant as rt, rn, rl, fits the pattern of the non-suspect consonant sequence of two established in other words in the language. In Tiwi, [paḷini] *old* interpreted as /parlini/ fits the CVC-CV-CV patterning of words like /tulduli/ *bitter*, /girdjini/ *small*. It has been stated that Tiwi has only two CV patterns, V and CV and consequently no consonant clusters.[22] But there is plenty of evidence that consonant clusters exist though not as extensively as in many other Australian languages, as the following evidence demonstrates:

(i) there are non-suspect sequences such as rŋ, lg as in yir'ŋani *lagoon*, tu:l'gu:li *salt*.

(ii) there are reverse sequences as kŋ, ŋk; tr, rt as in irk'ŋa:ba *mouth*, anaŋkwa *not*; trumura'gini *fast*, kuluwarti *dirt*.

(iii) there are prenasalised heterorganic stops: am'dia *and*, yawrabu'řandji *smooth*.

(iv) stress occurs between the nasal and stop in both homorganic and heterorganic stop-nasal clusters indicating the nasal closes one syllable and the stop opens the next: am'dia *and*, ŋerařiŋ'kiti *bite*, kin'daŋa *foot*.

6.2. Patterning of /r/ in Non-retroflexed Stop and Nasal Sequences

Further evidence in Tiwi that the retroflexed series pattern as a sequence of two phonemes is the occurrence of the /r/ phoneme in clusters with stops and nasals other than alveolar. Thus the interpretation of the retroflexed consonants as rt, rn, rl fits a gap in the patterning. Compare

ara'ri̲r̲pa *right*, udu'wa̲r̲ta *hunt* (both patterning V-CV-CVC-CV); gi̲r̲dj̲ini *small;* i̲r̲giritja'pe:ya *count;* ka'ruina̲r̲ŋ'gedi *tabu;* mbi̲r̲'ŋaři *fight.* Similar features occur in Burera (Arnhem Land) which has permissible sequences of two initially, medially and finally and the occurrence of such sequences as rr, rp, rk, suggesting the retroflexed series also fit this pattern. In an unpublished paper Glasgow has so interpreted the retroflexed consonants.[23]

6.3. Morpheme Boundaries

Whilst it is not necessary that syllable boundaries be congruent with morpheme boundaries it is awkward to postulate morpheme breaks through a consonant. The archaic form of the Tiwi masculine morpheme -ti is suffixed to stems ending either in a vowel or the phoneme /r/. When -ti is suffixed to a pronoun ending in r, the resultant phonetic form is the common Australian retroflexed contoid [ṭ]. The element of retroflexion belongs to the stem morpheme and the laminal element to the suffixial morpheme. Though structural pressures may suggest the retroflexed consonant is a single consonant /ṭ/, other pressures strongly suggest that the two basic phonetic features of which it is composed should not be submerged.

EXAMPLES:

-ti suffixed to r		*-ti suffixed to a vowel*	
mur-ti	*son*	mari-ti	*rainbow snake*
miyar-ti	*pandanus*	ila-ti	*knife*
kuluwar-ti	*dirt*	kulu-ti	*axe*
yar-ti	*ground*	ya-ti	*one item*[24]

This particular feature has been noted by other linguists in other languages; Dr von Brandenstein has noted its occurrence in Jindjiparndi and Ngarluma.[25]

6.4. The Stability of the /r/ Phoneme

The following evidence is put forward to show that (i) in Australian languages the linear division of alveolar is unstable, and (ii) that the /r/ phoneme exhibits many characteristics of stability.

(i) The instability of phonemes in the alveolar region is demonstrated by the fact that it is a common feature in Australian languages for t to be drawn to the alveopalatal position tj contiguous to i, or to be drawn to the point of articulation of a contiguous consonant. For example, the Tiwi word

/tirti/ is phonetically [tjiṭi], *bad*. In Western Desert, the alveolar consonant of the locative and transitive verb suffixes changes its point of articulation according to the final consonant of the stem to which it is suffixed: -ta and -tu become -la and -lu when suffixed to a stem ending in a lateral, -ṭa and -ṭu when suffixed to a stem ending in a retroflexed consonant, etc.[26]

(ii) The stability of the /r/ phoneme is demonstrated by the fact that it frequently influences alveolar phonemes to the retroflexed point of articulation as cited above. This phenomena is seen particularly in the case of the homorganic nasal stop sequence; ṇḍ and nd are both common sequences but ṇḍ and nḍ do not occur. Retroflexion thus exhibits greater stability than the alveolar feature. We have already noted in Tiwi how the consonant t of the masculine suffix is changed to the point of articulation of the /r/ phoneme following stems ending in r. In Gugu-Yalanji the /r/ phoneme is very restricted, occurring always as a syllable final feature except for one example in 1000 words. Retroflexion is not a feature of the language except for a few words like warṇḍil *wake up* and murṇi *to twist* where it occurs in association with the /r/ phoneme in its usual syllable final position. Had the alveolar phonemes been the more stable elements as one would expect, these words would have been phonetically [warṇḍil] and [murṇi].

6.5. Retroflexion of Vocoids

It is a common feature in Australian languages that vocoids are retroflexed before a retroflexed contoid but not following one. Douglas draws attention to this feature in the Western Desert language in the pronunciation of such words as [maṇa] *buttocks*, [maḷangka] *at the rear*, and [waṭa] *tree*,[27] as does O'Grady in Nyangumarda in such words as [yuḍa] *fish*, [tyuṇtu] *heap of sand*, [taḍad] *moon*.[28] This indicates that retroflexion is more particularly associated with a precontoid feature and indicates that the element of retroflexion is not centred in the contoid else it would be reasonable to expect retroflexion of the vocoid following as well as preceding. The centre of retroflexion appears to lie rather in the /r/ phoneme which is manifested as a precontoid feature.

6.6. Rarity of Word Initial Retroflexion

Investigators appear to have difficulty in recording initial retroflexed consonants. The difficulty may reflect actual fluctuation in this region but it is significant that word initial contrasts are rarely if ever listed in the retroflexed series. All such contrasts in languages such as Gunwinggu, Burera, Western Desert, Wailbri, Tiwi are recorded in the word medial position. This fact adds weight to the feature already discussed that the /r/ phoneme has strong preference for syllable final position (though it does not occur exclusively here). It is worthy of note that when word initial retroflexed contoids occur in a language, the /r/ phoneme may also occur word initially, strongly suggesting a link between the two (see Chart B).

NOTES

1. Linguistic Circle of Canberra Publication, Series A, Occasional Paper No.6, Canberra 1965.

2. The allied problem of the interpretation of long nasals dealt with by Bee is omitted as being unnecessary to the present argument.

3. Page 43.

4. Pages 42-43.

5. This principle is stated in Pike's ***Phonemics*** (University of Michigan Press, 1947), Analytical Procedure IV-J:147-8 where he states that a syllable may have a close-knit sequence of two phonemes on the segmental level which acts in distribution in the syllable like a single simple nuclear phoneme.

6. The term *item* is used to describe a feature of the language which may be non-phonemic such as stress and intonation which are often so described when they are non-phonemic.

7. See: ***A Description of the Yugambe: Dialect of Bandjalang***, Margaret C. Cunningham, Summer Institute of Linguistics (to be published).

8. See: ***Phonology of Wailbri***, K.C. Hansen, Summer Institute of Linguistics (in MS).

9. See underlined clusters in Chart A.

10. In ***Gugu-Yalanji***, in a selection of 618 words containing medial consonant clusters, almost 50% (298 words) were the nasal-stop series and of these 60% were the homorganic clusters mb, nd, ŋg. Kundjen has reverse sequences of all the homorganic clusters: mp and pm; nt and tn, ŋk and kŋ. See ***Kundjen Phonology: Word, Syllable and Phoneme***, B.A. and E.G. Sommer, Summer Institute of Linguistics (to be published).

11. The /l/ phoneme behaves much like the /r/ phoneme in this and other respects.

12. See Chart B.

13. /l/ is also usually a syllable final phoneme.

14. See Chart A.

15. See Chart A.

16. Discussion in private correspondence. Material not yet published.

17. ***Gugu-Yalanji Phonemes***, William and Lynette Oates, Occasional Papers in Aboriginal Studies No. 2, Australian Institute of Aboriginal Studies.

18. See Chart C.

19. Examples quoted in this paper have come from the following sequences: own transcription of tapes the property of Dr Helen Wurm, Australian Institute of Aboriginal Studies, and two MS. papers, ***Changes in Tiwi Language***, Arnold R. Pilling, Wayne State University, and ***Tiwi (or Woruŋuwi) Grammar***, author unknown.

20. See Chart D.

21. See Chart E.

22. Statement from ***Tiwi (or Woruŋuwi) Grammar***.

23. ***The Phonemes of Burera***, David and Kathleen Glasgow, Pacific Linguistics, Series A - Occasional Papers, No. 10, Papers in Australian Linguistics No. 1; 1967; pp. 1-14.

24. Examples from Pilling's MS. pp. 5-6.

25. In a report to the Australian Institute of Aboriginal Studies.

26. ***Western Desert Grammar***, W.H. Douglas, pp. 90, 92.

27. ibid, p. 7.

28. ***Nyangumata Grammar***, pp. 6, 16, 12.

Chart A

PREDOMINANT CV AND CONSONANT TYPES

___ = types of emic consonant clusters (C type 1-2) including types of heterorganic nasal-stop clusters (C type 1-2B)
( ) = homorganic nasal-stop clusters (C type 1-2A)
* = syllable final /r/ (C type 4)

LANGUAGE	CV *SYLLABLES*	CVC *SYLLABLES AND* C *TYPE 1-2A*	CV-CVC *COMBINATIONS*
Gugu-Yalanji (Cape York)	ba *come here* ga-ba *rain* ba-da-ba-da *at a lower level*	jin-bal-min *ran* (dambal *shoe* nandal *bury* muŋga *hair*)	ŋur*-ma *shadow* bal-ga *talk* bi-lar* *candle nut*
Wik-Munkan (Cape York)	mi-na *meat* ŋa-ka *water*	nan-pal *from then* (kempa *flesh* kantan *thigh* puŋku *knee*)	mal-pa *dance*
Gidabul (Nthn N.S.W.)	ja-li *tree*	kur*-kun *talk* bay-kal	ya-ra-man *horse* kal-ka-li-wa-li-wan *chopping*
Yugambe (Nthn N.S.W.)	ma-li *that* ga-li *this*	dul-gal *dirty* (yugambe *no* barundi *in the creek* guŋgi *in the water*)	di-bir* *plover* mu-li-mir* *up the hill*
Wunggada (Western Desert)	ma-ma *father* ba-da-ba-da *fight*	(Western Desert) (ŋampa *egg* nantura *mulga grass* maŋka *hair*)	nal-ga *quickly* nun-ŋa *woman* ya-ral-ba *red*
Ungaringin (Kimberleys)	pa-na-ru *sandstone* na-ma-la *hand*	bo:r* *handle*	ba-ŋal *bat* mal-ŋi-ri *lightning*

(Continued on page 45)

Chart A - continued from page 44

LANGUAGE	CV *SYLLABLES*	CVC *SYLLABLES AND* C *TYPE 1-2A*	CV-CVC *COMBINATIONS*
Nyul-Nyul (Kimberleys)	ŋe *yes*	nem *his eye* ŋab *father* mor*-gol *work* gol-gor* *quiet*	ŋa-ler* *my mouth* wa-ra-gan *eagle hawk*
Worora (Kimberleys)	ma *there* ma-ba *old man*		ka-bal-ba *earth* mal-na-nim *creek*
Kokobera (Gulf)	la *over there* ma-ŋo-ra *under-arm hair*	bib *father* mar* *hand* bun-men *blood* nal-ber* *tongue* (paŋanti *what* paŋgeli *hunt*)	wal-pi *west* bir*-ga-da *smoke*
Aranda (Central Aust.)	ma-ṁa *father* ma-la *female* ka-na-ŋa *two brothers*		tal-pa *mouth*
Wailbri (Central Aust.)	ŋa-ba *water* ma-lu *kangaroo* ga-di-di *mouth*	(njambu *there* pindi *skin* miŋgiri *ant bed*)	nar*-ga *man* mil-ba *eye* dja-ŋan-ba *opossum*
Waramunga (N.T.)	wo-ka *word* gu-na-ba *dog*	guŋ *stick* bul-bul *down* win-bin *break*	mun-gu *belly*
Anyula (Gulf)	ŋa-la *but* ma-la-la *little emu*	nan-kar* *cold* (galamba *forehead* balanda *white man* baridjuŋga *water lily*)	ku-tar*-ku *brolga* na-war*-ki *a soak*
Gunwinggu (Arnhem Land)	ma *get on with it!* ba-le *what*	yag-min *finish*	gun-meg-be *there* ŋa-gar*-me *I have it*
Burera (Arnhem Land)	ma *get it* la-ma *shovel spear*	pol *fire* wat-par* *type oak tree* (pampay *old woman* panta *leg* tiŋka *pandanus fruit*)	ka-la-maŋ *axe* war*-tu-na

(Continued on page 46)

Chart A - continued from page 45

LANGUAGE	CV *SYLLABLES*	CVC *SYLLABLES AND* C *TYPE 1-2A*	CV-CVC *COMBINATIONS*
Gubapwingu (Arnhem Land)	na *what!* ma-la *crowd*	dud *he sat down* bag *it broke*	jul-ŋu *person* bar*-gu *far away* da-ŋal-gu-ŋal *make big fire*

Chart B

DISTRIBUTION OF RETROFLEXION IN SIX REPRESENTATIVE AUSTRALIAN LANGUAGES

LANGUAGE	/r/ *WORD INITIAL*	*RETROFLEXED CONTOID WORD INITIAL*	/r/ *& RETROFLEXED CONTOIDS INTER-VOCALIC OR IN* CC
Tiwi (Bathurst Is.)	None	None	tjirita *little* tarinjiti *stone axe* tabini *yesterday* palini *old*
Gunwinggu (Arnhem Land)	Only a few examples in 1000 words: rowug *all* rednameŋ *nest* ruyi *ripe*	did *moon*	ŋare *I go* gunrurg *cave* -nudmime *keep silent* -ronbu *skin a kangaroo*
Western Desert	A few examples: riru-riru *bull roarer* raka-raka *jaw* rapa *confident*	likara *dry bark* tulku *corroboree* ninti *clever*	waru *fire* wata *tree* mana *buttocks* malu *hills kangaroo* kanpi *fat* tulku *song*
Wailbri (Central Aust.)	None	None	wiri *boy* wana *snake* wa:lu *fire* manilba *hair*

(Continued on page 47)

Chart B - continued from page 46

LANGUAGE	*/r/ WORD INITIAL*	*RETROFLEXED CONTOID WORD INITIAL*	*/r/ & RETROFLEXED CONTOIDS INTER-VOCALIC OR IN* CC
Gugu-Yalanji	One example in 1000 words: runudji *one versed in esoteric knowledge*	None	In just a few words as: murni *to twist* warndil *wake up*
Burera	rakka *sit down* ranka *moon* raman *fluff*	tiyama *sp. shell fish* norndo *mud whelk shell fish* lama *shovel spear head*	tjarana *sand* ŋarpar *cyprus pine* worlo *sibling* tjinkubuta *catfish*

Chart C

CHARTS OF PHONEMES OF TYPICAL APICAL-CONSONANT LANGUAGES

LANGUAGE	*Bi-labial*	*Dental*	*Al-veolar*	*Retro-flexed*	*Velar*	*Glottal*
Western Desert	p m w	tj ny ly 	t n l r y	t n l r	k ŋ 	
Gunwinggu	b m w	dj nj lj 	d n l r y	d n l r	g ŋ 	?
Wailbri	b m w	dj nj lj 	d n l y	 n l r	g ŋ 	

(Continued on page 48)

Chart C - continued from page 47

LANGUAGE	*Bi-labial*	*Dental*	*Al-veolar*	*Retro-flexed*	*Velar*	*Glottal*
Nyangumarda	p	t^y	t	ṭ	k	
	m	n^y	n	ṇ	ŋ	
		l^y	l	ḷ		
			r			
	w	y		ṛ		

Chart D

PHONEMES ASSOCIATED WITH RETROFLEXION IN TIWI

LATERAL DIVISION →

LAMINAL DIVISION ↓

	Alveolar	*Retroflexed* /RL/ /L/
Stops	/t/	rt-------Ls
Nasals	/n/	rn-------Ln
Laterals	/l/ *in mutually exclusive distribution*	rl-------Ll / R_l /
Resonants		r

Chart E

CONSONANT SEQUENCES FUNCTIONING AS A SEQUENCE IN ONE ENVIRONMENT AND AS A FUSED UNIT IN FOUR LANGUAGES

	SEQUENCE *(Filling two C slots)*	*FUSED UNIT* *(Filling one C slot)*
HOMORGANIC NASAL-STOP SEQUENCES	CVC-CV	CVC-CV
GUGU-YALANJI	gam–bi *clothes* (cp. gun–ba *finish*) bun–dan–day *sitting* (cp. bunday *sit*	wal–ŋga *to hang* (cp. wal–ŋa *to open*)
RETROFLEXED CONSONANT SEQUENCES	CVC-CV-CV	
TIWI	tir–ti–ta *little* (cp. tul–tu–li *bitter* gir–dji–ni *small*)	
	CVC-CV	
	yar–ti *earth* (cp. CV-CV ya–ti *one item*)	
WAILBRI		CVC-CV
		warl–ba *wind* (cp. yur–na *travelling*)
NYANGUMARDA		kart–ku *river gum* (cp. yar–ti *later on*)

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KUNJEN PRONOUNS AND KINSHIP

B.A. and E.G. SOMMER

0. INTRODUCTION

The fifty or sixty Kunjen (Oykangant) speakers who live at the Mitchell River Mission and on surrounding cattle stations are now largely detribalised, observing to a lesser and lesser degree the customs of their ancestors.[1] This discussion of their pronominal and kinship terms brings to light a distinct correlation between Kunjen linguistics and social behaviour.

1. PRONOUNS

Kunjen pronouns are free forms; the following matrix represents the Nominative forms:

Chart Ia

	Person		*Singular*	*Dual*	*Plural*
NOMINATIVE	1	incl.	–	aliy	ampul
		excl.	ay	alinj	anjtan
	2		inang	upal	urr
	3		il	ul	etn

Kunjen words follow a vowel-initial/consonant-final pattern.[2] Comparison with the pronominal forms of geographically nearby languages indicates that conformity to this

Sommer, B.A. and Sommer, E.G. "Kunjen Pronouns and Kinship". In Glasgow, D., Glasgow, K., Kirton, J., Oates, W., Sommer, S.A. and Sommer, E.G. editors, *Papers in Australian Linguistics No. 1.* **A-10:53-65**. Pacific Linguistics, The Australian National University, 1967. DOI:*10.15144/PL-A10.53*

word-pattern has been achieved for Kunjen pronouns largely by the loss of the initial consonant and/or final vowel.

The Common Australian 1st pers. sing. nom. ngai suggested by Capell (1962)[3], the Gugu-Yalanji ngayu[5] and the Wik-Munkan ngay[4] are thus reduced to the ay above. This systematic change may be traced also in the 3rd pers. dual nom. ul that has clear relationships with Gugu-Yalanji pula, Koko Bera pulu and Wik-Munkan pul; the 2nd pers. plur. urr which relates to Gugu-Yalanji yurra, Koko Bera yurr; and other forms.

The persistence of pul in the dual forms of Kunjen is confirmatory evidence of its antiquity and stability in the Cape York/Western Desert Languages, already remarked on at length by Capell (ibid.). pul appears with a vowel change (Koko Bera yipel, 2nd pers. dual), with loss of part of the form (ul above), minimally (Wik-Munkan pul, 3rd pers. dual), or in inversion (Gugu-Yalanji pula, Kunjen upal, 3rd pers. plur.).[6]

The particle li noted by Capell appears also in the 1st pers. dual forms; a feature shared by Gugu-Yalanji and Koko Bera.

These occurrences are significant in view of the very low level of coincidence of Kunjen words with Capell's "Common Australian" vocabulary (ibid., 80ff.). Only five Kunjen words approach this CA list: el 'eye', al 'fire', uw 'give', in 'sit', utjir 'two'.

Chart Ib indicates that the general marker for possessive case is -ang, and Chart Ic indicates -ngan as the general marker of the objective case.

Chart Ib

	Person		*Singular*	*Dual*	*Plural*
POSSESSIVE	1	incl.	–	aling	ampung
		excl.	aten	alinjang	anjtang
	2		inin	upang	urrang
	3		ingin	ulang	etnang

Chart Ic

	Person		*Singular*	*Dual*	*Plural*
OBJECTIVE	1	incl.	–	alingan	ampungan
		excl.	atun	alinjan	anjtangan
	2		inun	upangan	urrangan
	3		ingun	ulangan	etnangan

The regularity of formation of the non-singular forms contrasts with the unpredictable singular forms.

2. SOCIAL ORGANISATION: KINSHIP

There has been considerable anthropological research into the social organisation of the Cape York tribes. R.M. and C.H. Berndt (1964, 80-81), commenting on this work, refer to Sharp (1939):[7]

> "The question of status is significant here, as in all Aboriginal societies to a lesser or greater degree, and this is expressed through specific status relationships. Sharp speaks of 'weak relationships' balanced by 'strong relationships', saying that this 'is necessary for a society in which every active individual relationship, at least between males, involves a definite and accepted superiority and inferiority... Even in distant relationships there is always present a recognized element of superordination and subordination' (ibid., 419). This inequality, inherent in the kinship terminology, is demonstrated in kinship behaviour, and is further exemplified in asymmetrical or unilateral preferential marriage."

This concept of 'superordination' and 'subordination', applied to kinship terminology in Kunjen, reveals an interesting structure. Since the marriages follow the general Murngin pattern, and the society is strongly patrilineal, males take priority over females where otherwise any equality might be assumed. Membership in a senior generation confers superordination.

The numerals in the following chart indicate a difference in generation levels.

3. KINSHIP TERMS

Chart II

	Superordinate		*Subordinate*	
2	apmingarr	ff/mm	arrngkapmalk	ss/dd
	atjingarr	fm/mf	arrngkatjalk	sd/ds

(Continued on page 56)

Chart II - continued from page 55

	Superordinate		*Subordinate*	
1	ipangarr	f/fb	arrngk	child
	amangarr	m/ms		
	alangarr	mb/fsh	uwangarr }	niece/
	injangarr	fs/mbw	antangarr }	nephew
0	olangarr	ob	akangarr	yb
	epangarr	os	elangarr	ys
	orangarr	h	urrangarr	w
	ulangarr	cousin	etnangarr	cousin

Differentiation on the basis of generation and sex remains valid up to the final "0" sector where the upper series (orangarr, urrangarr) is superordinate to the lower (ulangarr, etnangarr), following the pattern of the preceding "0" sector (brother/sister) but the reason is less obvious. It is to be found in the status of the progenitors of ulangarr and etnangarr, certainly, but an established pattern has yet to develop.

4. CORRELATION

A large proportion of the kinship terms set out above is derived from the possessive pronouns of Chart Ib, usually by the addition of **-arr**, the origin of which is uncertain. urrang 'yours (plur.)', urrangarr 'wife'; ulang 'theirs (dual)', ulangarr 'cousin'; etnang 'theirs (plur.)', etnangarr 'cousin'; anjtang 'ours (excl. plur.)', antangarr 'nephew'.

Minimal change of a vowel in certain of the pronominal forms of Chart Ib has enabled the use of one basic form in expressing several relationships. ulang 'theirs (dual)'; ulangarr 'cousin'; thus modifies to olangarr 'older brother', elangarr 'younger sister' and alangarr 'uncle'.

The first person pronouns (with the exception of anjtang 'ours (excl. plur.)'; antangarr 'nephew') are not used to express kinship.[8] The reason for this is uncertain, but may perhaps involve the fact that kinship terms already express relationships based on EGO. The failure to utilise the first person has made necessary the economy noted above in minimal vowel changes.

With the exception of some of these minimally derived forms, a further patterning may be evidenced by Chart II.

The singular and dual forms of Chart Ib are found in the 'superordinate' column, while subordination is expressed through plural forms.

5. RESIDUAL FORMS

While **injangarr** 'aunty' is traceable to **inin**[9] 'yours (sing.)', terms such as **amangarr** 'mother', **akangarr** 'younger brother' cannot be traced directly to pronominal forms. It is suggested rather that the terms still unaccounted for may be derived from the words for 'man', 'child', and 'give'.

pama '(native) man' is used by the Kandju, Gugu-Yimidir, and Gugu-Yalanji, and may be considered the original form of the Kunjen **apm**, which has undergone vowel loss and inversion to conform to Kunjen phonology. It may be this form, further modified by vowel change and/or consonant loss that is behind **amangarr** 'mother' and **ipangarr** 'father'. This is supported by the occurrence of **apm** in the bloc indicating a generation difference of 2, where it apparently denotes matrilineal or patrilineal continuity of line. **atj** contrasts with **apm** in the same bloc; it occurs in isolation with the meaning of 'mud'.

Berndts (1964), in discussing the responsibilities and privileges of the mother's brother and father's sister, suggest that these relationships are "pivotal" and "crucial" in Aboriginal society. These strong words express the deep interest anthropologists have shown in the mother's brother/father's sister: nephew/niece relationship. The exceptional use of **anjtang** 'ours (excl. plur.)', **antangarr** 'nephew' has already been noted. **uwangan**, our closest dictionary entry to **uwangarr** 'niece', has the meaning of 'might give', which, beside being a departure from the general pattern, carries interesting suggestions.[10]

arrngk 'child' may be the result of the process of vowel loss and inversion applied to **akangarr** 'younger brother'. Neither **pul** nor **li** can be clearly accounted for in any of the kinship terms.

NOTES

1. Kunjen is a name popularly applied to the Oykangant, Olkol, Ayan and Winkan dialect speakers.

2. "Kunjen Phonology: Word, Syllable and Phoneme" (forthcoming).

3. Capell, A., "A New Approach to Australian Linguistics", *Oceania Linguistic Monograph No. 1* (1962) University of Sydney.

4. Godfrey, Marie and Kerr, H.B., "Personal Pronouns in Wik-Munkan", *Papers on the Languages of the Australian Aborigines* (1964) A.I.A.S. Canberra.

5. Oates, William and Lynette, "Gugu-Yalanji Linguistic and Anthropological Data", *Gugu-Yalanji and Wik-Munkan Language Studies* (1964) A.I.A.S. Canberra. (The bi-labial stop phoneme has been re-written as p for comparative purposes.)

6. The form ngupal may also be postulated as a proto-form for upal.

7. Berndt, R.M. & C.H., *The World of the First Australians*, Ure Smith (1964) p.509.
Sharp, R.L., "Tribes and Totemism in North-East Australia", *Oceania*, Vol.IX, Nos. 3 and 4.

8. Unless it is ampung 'ours (incl. plur.)' which would require a complete change in the manner of articulation of the mp cluster to w, and is less appealing than the suggestion above.

9. Schmidt's Group II Pronouns, which Capell infers would apply to the Western Desert/Cape York languages, includes njin, which is strongly suggestive of a form that would permit this derivation of the kinship term.

10. Direct-address forms of the kinship terms are achieved in general by reduplication (partial or entire) of the first syllable of the usual reference term, and the loss of the final -arr. Thus epangarr 'older sister' becomes

epepang; etnangarr 'cousin' becomes netnang. The forms eparrntj(arr), etnarrntj(arr), etc., would be used to refer to '*my* older sister', '*my* cousin', etc. In discussions over a third person, the speaker honours the hearer by using the term denoting the hearer's relationship to that third person. Anthropological research into the social organisation of the Kunjen people will no doubt afford more precise definitions of some relationship terms.

*

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Orthography used is that established by "Oceania" usage except that rr *denotes a voiceless trill.*

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*